

CLAIMS

What is claimed is:

1. A digital imaging system comprising:
 - a first imaging sensor;
 - a second imaging sensor, the second imaging sensor coupled to the first imaging sensor;
 - a first filter coupled to the first imaging sensor, wherein the first filter filters light at a first set of wavelengths; and
 - a second filter coupled to the second imaging sensor, wherein the second filter filters light at a second set of wavelengths, the first set of wavelengths being different from the second set of wavelengths.
2. The digital imaging system of claim 1 further comprising:
 - a processor to calculate a surface reflectance of an object based on the first set of wavelengths and the second set of wavelengths.
3. The digital imaging system of claim 1, wherein the first imaging sensor is a charge coupled device (CCD) or a complementary metal-oxide semiconductor.
4. The digital imaging system of claim 1, wherein the second imaging sensor is a charge coupled device (CCD) or a complementary metal-oxide semiconductor.
5. The digital imaging system of claim 1, wherein the first filter is a trichromatic filter.
6. The digital imaging system of claim 1, wherein the second first filter is a trichromatic filter.
7. The digital imaging system of claim 1, wherein the first filter provides for three imaging channels.

8. The digital imaging system of claim 1, wherein the first filter provides for four imaging channels.
9. The digital imaging system of claim 1, wherein the second filter provides for three imaging channels.
10. The digital imaging system of claim 1, wherein the second filter provides for four imaging channels.
11. The digital imaging system of claim 1, wherein the second filter provides for two imaging channels.
12. The digital imaging system of claim 1, wherein the second filter provides for one imaging channel.
13. A digital imaging apparatus comprising:
 - a first means for capturing colorimetric information;
 - a second means for capturing colorimetric information, the first means for capturing colorimetric information coupled to the second means for capturing colorimetric information;
 - a first means for filtering coupled with the first imaging sensor means, wherein the first means for filtering to filter light at a first set of wavelengths; and
 - a second means for filtering coupled with the second imaging sensor means, wherein the second means for filtering to filter light at a second set of wavelengths, the first set of wavelengths being different from the second set of wavelengths.
14. The digital imaging apparatus of claim 13 further comprising:
 - a means for processing to calculate a surface reflectance of an object based on the first set of wavelengths and the second set of wavelengths, the means for processing coupled with the first means for capturing colorimetric information and the second means for capturing colorimetric information.

15. A machine-readable medium having instructions to cause a machine to perform a method, the method comprising:
 - receiving a first set of wavelengths of light;
 - receiving a second set of wavelengths of light; and
 - processing the first set of wavelengths and the second set of wavelengths to calculate a surface reflectance of an object.
16. The machine-readable medium of claim 15, wherein the first set of wavelengths provides three imaging channels.
17. The machine-readable medium of claim 15, wherein the first set of wavelengths provides four imaging channels.
18. The machine-readable medium of claim 15, wherein the second set of wavelengths provides three imaging channels.
19. The machine-readable medium of claim 15, wherein the second set of wavelengths provides four imaging channels.
20. The machine-readable medium of claim 15, wherein the second set of wavelengths provides one imaging channel.
21. The machine-readable medium of claim 15, wherein the second set of wavelengths provides two imaging channels.
22. The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing principal component analysis.
23. The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing independent component analysis.

24. The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing Wiener estimation.
25. A method comprising:
receiving a first set of wavelengths of light;
receiving a second set of wavelengths of light; and
processing the first set of wavelengths and the second set of wavelengths to calculate a surface reflectance of an object.
26. The method of claim 25, wherein the first set of wavelengths provides three imaging channels.
27. The method of claim 25, wherein the first set of wavelengths provides four imaging channels.
28. The method of claim 25, wherein the second set of wavelengths provides three imaging channels.
29. The method of claim 25, wherein the second set of wavelengths provides four imaging channels.
30. The method of claim 25, wherein the second set of wavelengths provides one imaging channel.
31. The method of claim 25, wherein the second set of wavelengths provides two imaging channels.
32. The method of claim 25, wherein the calculation of the surface reflectance includes performing principal component analysis.
33. The method of claim 25, wherein the calculation of the surface reflectance includes performing independent component analysis.

34. The method of claim 25, wherein the calculation of the surface reflectance includes performing Wiener estimation.